

The Sea's Edge: An Examination of Local Use of a Barbadian Littoral Zone and the Implications for Future Implementation of Marine Protected Areas (MPAs)

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Introduction

BARBADOS



Introduction

- This is not intended to be a criticism of MPAs as a strategy for managing, protecting, and conserving marine resources, but instead is a discussion about social science research and the inclusion of local knowledge in fisheries management
- There are many MPAs with varying degrees of biological and social benefits, often depending on factors such as access and the inclusion of locals in the development of the MPA.
- Question is what factors increase the likelihood of a biologically and socially successful MPA
- Answer is an MPA that provides both biological and social benefits. The best way to understand how to reach those goals is to have a comprehensive understanding of the ecological importance of the marine resources to people affected by its creation.
- For this discussion I want to use the littoral zone of Bath, Barbados to demonstrate how certain areas can potentially be overlooked in terms of human ecological importance

What is the Littoral Zone

- Edges -- where land and sea meet
- Biologically important places—often nursery areas
- Socially and culturally important—identity, self sufficiency and independence, and for the people of Bath the littoral is an important component of their long history
- Includes places such as
 - Shallow coral reefs
 - Sea grass beds
 - Exposed beach rock
 - Mud flats
 - Estuaries
 - Mangrove swamps
 - Fresh water streams

Definition of the Littoral Zone

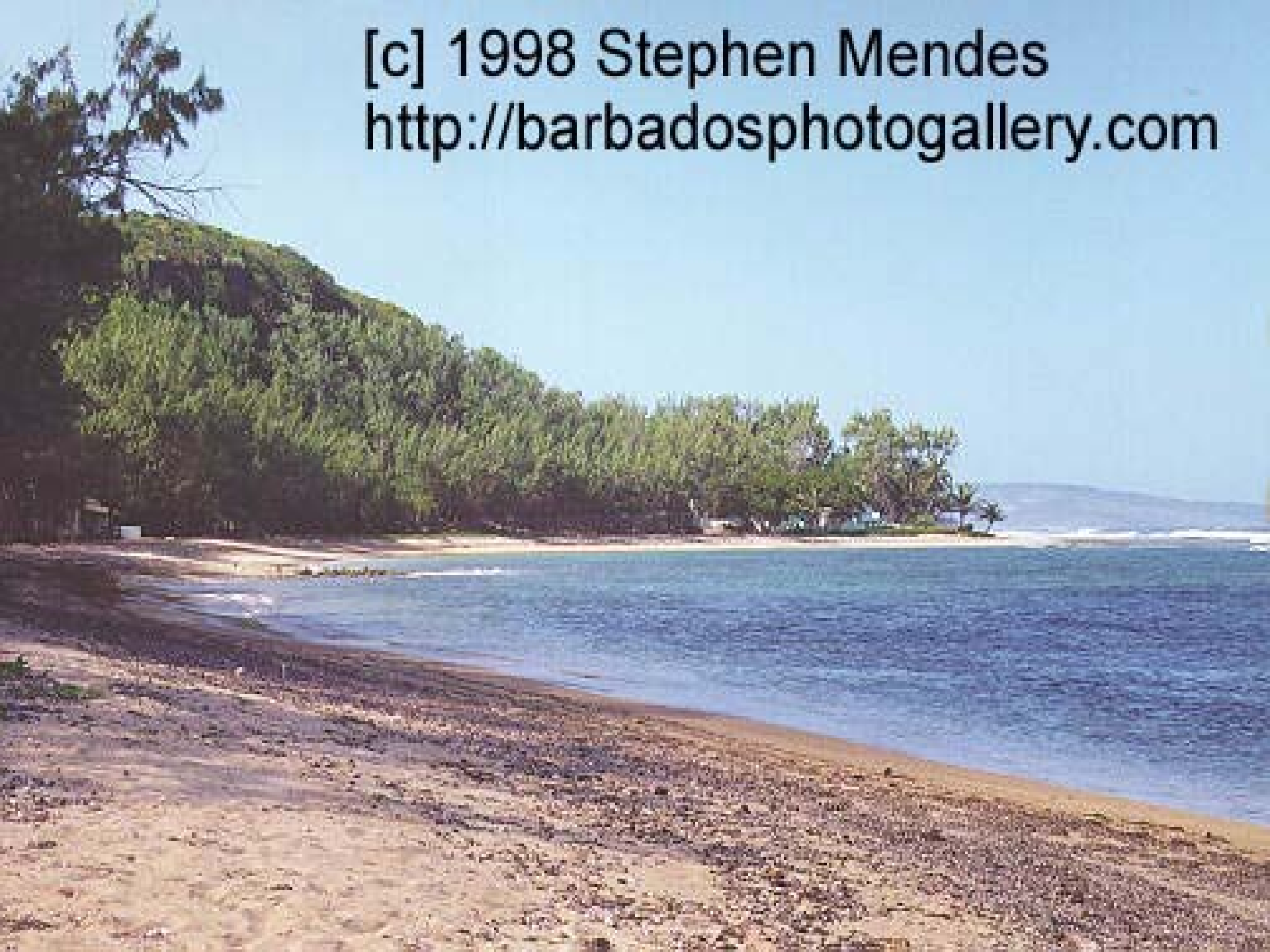
- ...the portion of the sea immediately adjacent to the land but no deeper than the waist of an adult at low tide. However, the littoral extends onto land through food webs that critically depend on both fresh and salt water habitats

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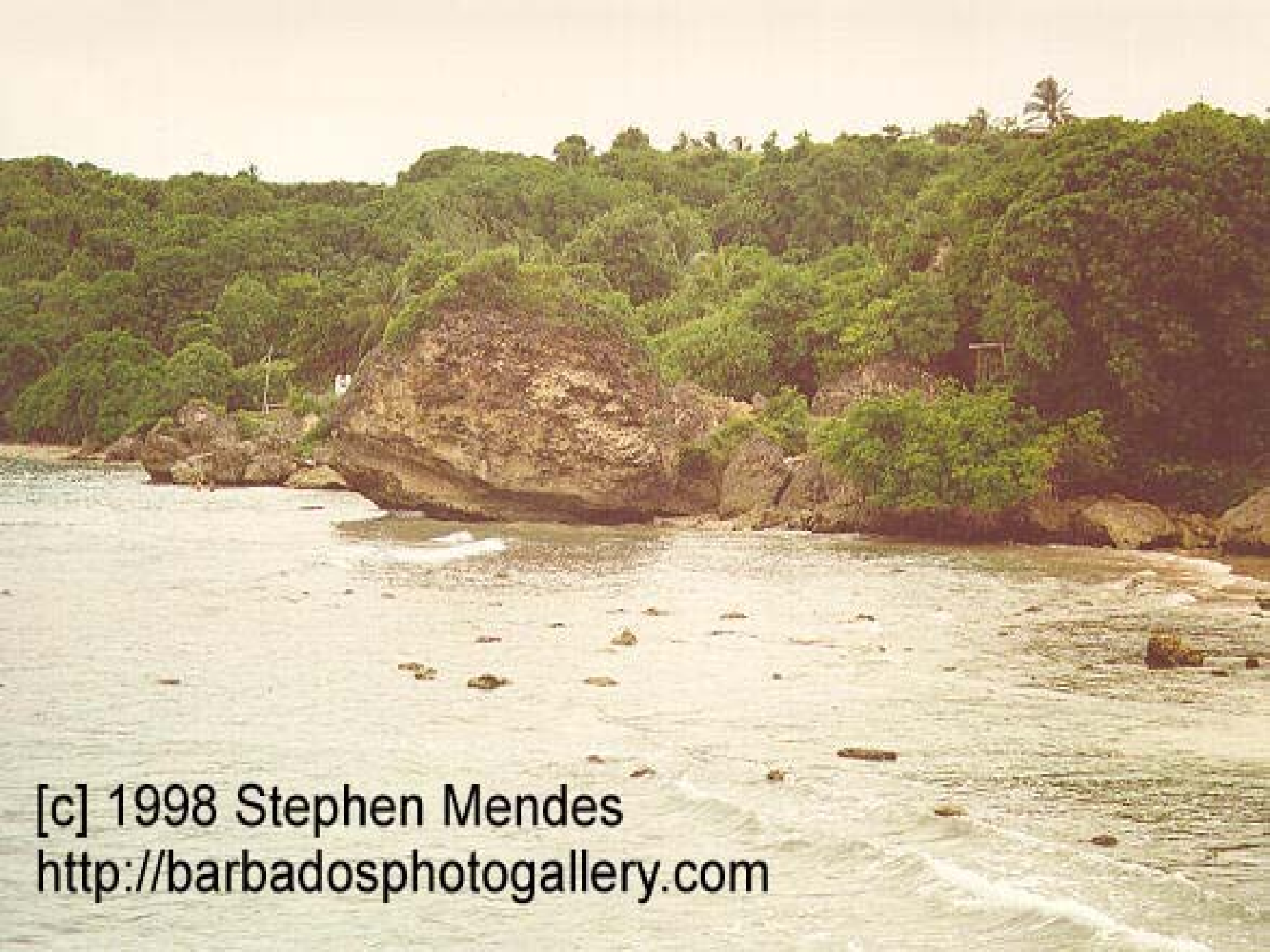


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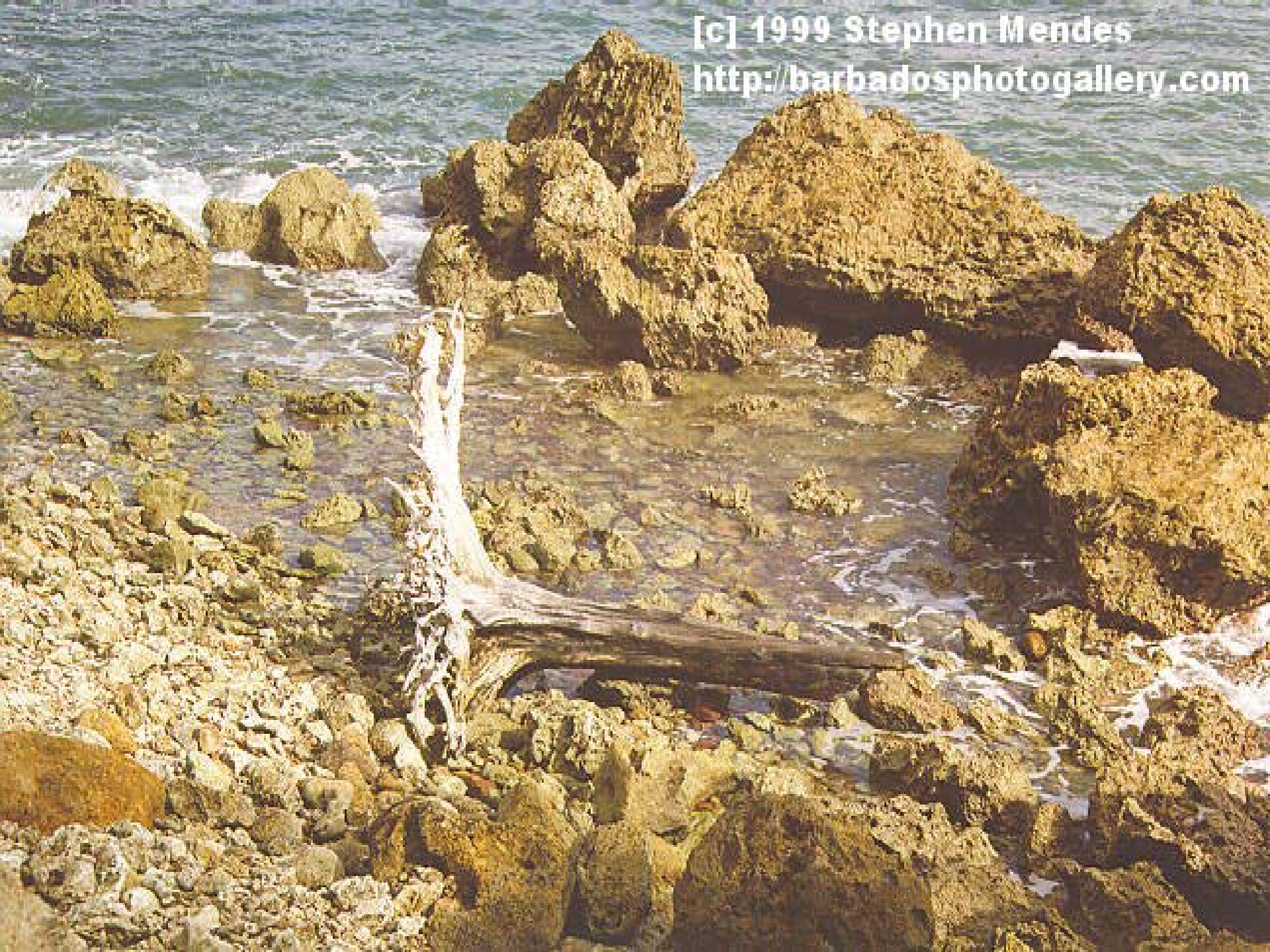




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Historical and Cultural Connection to the Littoral

Bath's Historical Connection to the Littoral

- Many of the people are descendants of the slaves that once worked the plantation.
- Based on limited amounts of land available after emancipation, most stayed close to the plantation.
- With no obligation for plantation owners to care for the slaves, marine resources became even more critical to the survival of these people.
- Evidence suggests that the littoral zone was differentially important for Barbadians as compared to other Islands for much of the land was obligated to sugar cane production.
- Small gardens were extremely important as well as small scale animal husbandry, however the sea provided immediate access to plants and animals for medicinal and consumptive purposes, force literature suggests that slavery in Barbados was much harsher than in other islands.

Bath's Historical Connection to the Littoral

- This means for local community members, like those of Bath, there is a long standing relationship between humans and the resources associated littoral zone
- They have seen changes in the environment
- They have seen changes in the fish species
- They have developed mechanisms and strategies to adapt to those changes



Location: Bath
Parish: St. John

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Use

Use of the Bath Littoral

- Collection of marine resources
- Collection of plants
- Place for sea baths
 - Medicinal and psychological purposes
- Place of recreation

Use of the Littoral Resources

- Food
- Medicinal
- Bait
- Money
- Building and fostering relationships
- Knowledge sharing

Use of the Bath Littoral

- Especially important for the elderly and young
- Elderly
 - Social Independence – ability to provide food for their families and others within their social network
 - Economic Independence – Use food gathered in littoral to replace protein to be purchased
 - Identity – value in being able to gather own food, to be known as a “good” fisherman, meaning productive
 - Place of cultural transmission of knowledge about the various uses and manner for appropriately collecting plants and animals. Often based on the accumulation of multiple generations of knowledge.

Types of Marine Animals Targeted

- Caribbean Reef Octopus
- Caribbean Spiny Lobster
- Chiton
- Chub
- Conger Eels, Garden Eel
- Crevalle
- French Grunt
- Giant Brain Coral
- Great Barracuda
- Green Eel, Green Moray
- Jacks
- Jolthead Porgy
- Lemon Shark
- Mangrove Snapper
- Red Snapper
- Nassau Grouper
- Nurse shark
- Parrotfish
- Queen Conch
- Queen Triggerfish
- Red Snapper
- Reticulated Sea Star
- Sea Sponges
- Sea Urchins
- Skate
- Stingray
- Keeltail Needlefish, Flat Needlefish
- Fray
- Sprat
- Caribbean Reef Squid
- Sardine
- Squirrel Fish
- Spanish Hogfish
- Whelk









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Use of the Bath Littoral

- Place where knowledge is passed – environmental classroom with the opportunity for hands on learning
 - For example the sharing of information about lobsters
- Fathers bring sons – teach them to handline for sprats
- Older brothers bring younger brothers – Spearfish and sea cat
- Older men from the village teach young boys on the beach – tell stories about the changing seas, currents and seasons
- The littoral is important in Bath because the wave action and rip currents are limited by shallowness of the area. This means that young boys can learn the lessons of the sea without putting themselves in grave danger.





Importance of Identity

- Story of Bigfoot
- Gave up higher paid wage labor for fishing
- Based on the social reinforcement of his worth as a person.

Implications of creating a no-take/no access MPA that extends from the Bath Littoral

- Loss of Connection to Place
 - Impacts cultural transmission of knowledge
 - Affects the ability to develop and maintain an identity that they perceive to be of value
- Loss of Access to Resources
 - Food
 - Money
 - Medicinal Plants

Management

- a partnership arrangement in which government, the community of local resource users, external agents (NGOs, academic and research institutions), and other resource stakeholders share the responsibility and authority for the management of a resource
- covers various partnership arrangements and degrees of power sharing and integration of local (informal, traditional, customary) and centralized government systems
- partnerships are pursued, strengthened and redefined at different times in the management process, depending on the existing policy and legal environment, the political support of government for community-based initiatives, and the capacities of community organizations to become partners. (<http://www.co-management.org/>)

Some Contemporary Problems with Management

- Poor Design of Regulations
- Lack of Stakeholder “buy-in”
- Low Levels of Compliance
- Ineffective Controls
 - especially critical with an MPA management strategy
 - enforcement

Management

- If efforts to manage resources and places do not consider the local connection to a place, there is likely to be much greater resistance to proposed management efforts.
- In cases where an MPA may be implemented, for example in places like Bath, there is no question that a partnership and a cooperatively developed plan gives all concerned the best chance of reaching certain social and biological goals.
- Orbach called appropriate fishery policy the balancing of biological, social and economic trade-offs. Bringing local knowledge to the table helps to ensure that principles of conversation as well as sustainability are considered within the framework of policy development

What Advocacy Role Does Social Science Have in Fisheries Management

- Too often there is a perception of social scientists as advocates for fishermen, when in reality we are advocating a process.
- This is a process that should include
 - information about local communities
 - information about existing relationships with resources—i.e. their own mechanisms for local control over behavior and effort
 - an understanding of cultural and economic significance of marine resources to community (and outside of the community)—holistically examining the role of marine resource use in conjunction with other types of local activities
- Act as a bridge between formal political agencies and local communities—bringing local knowledge to the policy table by providing information about those who are sometimes marginalized in the process